

**ABSTRACT**

A low-noise active pixel circuit is disclosed that efficiently suppresses reset (kTC) noise by using a compact preamplifier consisting of a photodetector and only four MOSFETs of identical polarity, in conjunction with ancillary circuits located on an imager's periphery. The supporting circuits help the simplified pixel circuit to synchronously acquire (i.e., take a snapshot) an image across an imaging array, read the signal with low noise, and efficiently reset the pixel with low noise.